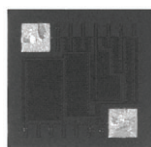


## Thin Film Top-Contact Resistor



Product may not be to scale

The SFM series single-value resistor chips offer a small size, wide ohmic value range and excellent power capacity. The SFMs tantalum nitride resistor material offers excellent resistance to high moisture environments. The SFMs are manufactured using Vishay Electro-Films (EFI) sophisticated thin film equipment and manufacturing technology. The SFMs are 100 % electrically tested and visually inspected to MIL-STD-883, method 2032 class H or K.

### FEATURES

- Wire bondable
- Small size: 0.020 inches square
- Case: 0202
- Resistance range: 1.0  $\Omega$  to 1 M $\Omega$
- DC power rating: 250 mW
- Oxidized silicon substrate for good power dissipation
- Resistor material: tantalum nitride, self-passivating
- Moisture resistant
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



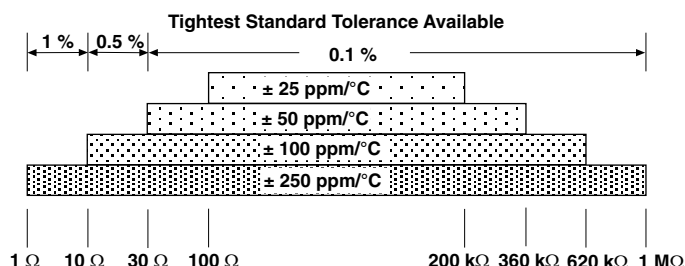
**RoHS**  
COMPLIANT  
HALOGEN  
**FREE**  
**GREEN**  
(5-2008)

### APPLICATIONS

Vishay EFI SFM top-contact resistor chips are designed to handle substantial power loads in many types of hybrid packages. They are ideally suited for this purpose because of their small size.

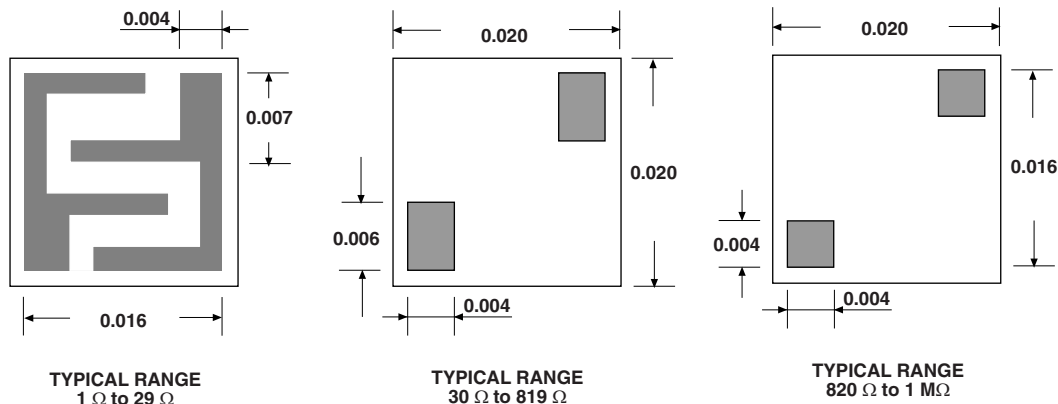
### TEMPERATURE COEFFICIENT OF RESISTANCE, VALUES, AND TOLERANCES

PARAMETER	VALUE	UNIT
Total Resistance Range	1 to 1M	$\Omega$
Standard Tolerances	$\pm 0.1$ , $\pm 0.5$ , $\pm 1$	%
TCR	$\pm 25$ , $\pm 50$ , $\pm 100$ , $\pm 250$	ppm/ $^{\circ}$ C



### STANDARD ELECTRICAL SPECIFICATIONS

PARAMETER	VALUE	UNIT
Noise, MIL-STD-202, Method 308 100 $\Omega$ to 250 k $\Omega$ < 100 $\Omega$ or > 251 k $\Omega$	-35 typ. -20 typ.	dB
Moisture Resistance, MIL-STD-202 Method 106	$\pm 0.5$ max. $\Delta R/R$	%
Stability, 1000 h, +125 $^{\circ}$ C, 125 mW	$\pm 0.25$ max. $\Delta R/R$	%
Operating Temperature Range	-55 to +150	$^{\circ}$ C
Thermal Shock, MIL-STD-202, Method 107, Test Condition F	$\pm 0.25$ max. $\Delta R/R$	%
High Temperature Exposure, +150 $^{\circ}$ C, 100 h	$\pm 0.5$ max. $\Delta R/R$	%
Dielectric Voltage Breakdown	200	V
Insulation Resistance	$10^{12}$ min.	$\Omega$
Operating Voltage	100 max.	V
DC Power Rating at +70 $^{\circ}$ C (Derated to Zero at +175 $^{\circ}$ C)	0.250	W
5x Rated Power Short-Time Overload, +25 $^{\circ}$ C, 5 s	$\pm 0.25$ max. $\Delta R/R$	%

**CONFIGURATIONS** in inches

**SCHEMATIC**


MECHANICAL SPECIFICATIONS	
PARAMETER	VALUE
Chip Size	0.020" x 0.020" ± 0.003" (0.5 mm x 0.5 mm ± 0.076 mm)
Chip Thickness	0.010" ± 0.002" (0.254 mm ± 0.05 mm)
Chip Substrate Material	Oxidized silicon, 10 kÅ minimum SiO <sub>2</sub>
Resistor Material	Tantalum nitride, self-passivating
Bonding Pad Size	0.004" x 0.004" (0.10 mm x 0.10 mm)
Number of Pads	2
Pad Material	25 kÅ minimum aluminum
Backing	None, lapped semiconductor silicon

GLOBAL PART NUMBER INFORMATION																
Global Part Number: SFM50000FKANHWS																
Global Part Number Description: SFM 5K 1 %, 100 ppm/°C, Al, no back metal, class H, WS																
S	F	M	5	0	0	0	0	F	K	A	N	H	W	S		
MODEL	RESISTANCE		RESISTANCE MULTIPLIER CODE		TOLERANCE CODE (%)		TCR (ppm/°C)		TERMINATION		BACK METAL		VISUAL CLASS		PACKAGING CODE	
SFM	First 4 digits are significant figures of resistance		C = 0.001 B = 0.01 A = 0.1 0 = 1 1 = 10 2 = 100 3 = 1000		B = 0.1 C = 0.25 D = 0.5 F = 1.0 G = 2.0 H = 2.5 J = 5.0 K = 10		E = ± 25 C = ± 50 K = ± 100 M = ± 250 R = 0 / -250		G = au A = al		G = au N = none		H = class H K = class K		WS = waffle pack 100 min, 1 mult	



INTERNAL USAGE, WILL NOT BE SHOWN IN UPLOADED PDF

PRODUCT SUMMARY									
SERIES	SIZE / DEVICE STYLE	TCR ( $\pm$ ppm/ $^{\circ}$ C)	TOLERANCE ( $\pm$ %)	RESISTANCE ( $\Omega$ )	E-SERIES	POWER RATING (W)	TEMP. ( $^{\circ}$ C)	MAX. VOLTAGE (V)	AUTO.
SFM	0202; wire bondable	25	0.10	100 to 200K	n/a	0.250	-55 to +125	100	No
SFM	0202; wire bondable	25	0.25	100 to 200K	n/a	0.250	-55 to +125	100	No
SFM	0202; wire bondable	25	0.50	100 to 200K	n/a	0.250	-55 to +125	100	No
SFM	0202; wire bondable	25	1	100 to 200K	n/a	0.250	-55 to +125	100	No
SFM	0202; wire bondable	25	2	100 to 200K	n/a	0.250	-55 to +125	100	No
SFM	0202; wire bondable	25	5	100 to 200K	n/a	0.250	-55 to +125	100	No
SFM	0202; wire bondable	25	10	100 to 200K	n/a	0.250	-55 to +125	100	No
SFM	0202; wire bondable	50	0.10	30 to 360K	n/a	0.250	-55 to +125	100	No
SFM	0202; wire bondable	50	0.25	30 to 360K	n/a	0.250	-55 to +125	100	No
SFM	0202; wire bondable	50	0.50	30 to 360K	n/a	0.250	-55 to +125	100	No
SFM	0202; wire bondable	50	1	30 to 360K	n/a	0.250	-55 to +125	100	No
SFM	0202; wire bondable	50	2	30 to 360K	n/a	0.250	-55 to +125	100	No
SFM	0202; wire bondable	50	5	30 to 360K	n/a	0.250	-55 to +125	100	No
SFM	0202; wire bondable	50	10	30 to 360K	n/a	0.250	-55 to +125	100	No
SFM	0202; wire bondable	100	0.10	30 to 620K	n/a	0.250	-55 to +125	100	No
SFM	0202; wire bondable	100	0.25	20 to 620K	n/a	0.250	-55 to +125	100	No
SFM	0202; wire bondable	100	0.50	10 to 620K	n/a	0.250	-55 to +125	100	No
SFM	0202; wire bondable	100	1	10 to 620K	n/a	0.250	-55 to +125	100	No
SFM	0202; wire bondable	100	2	10 to 620K	n/a	0.250	-55 to +125	100	No
SFM	0202; wire bondable	100	5	10 to 620K	n/a	0.250	-55 to +125	100	No
SFM	0202; wire bondable	100	10	10 to 620K	n/a	0.250	-55 to +125	100	No
SFM	0202; wire bondable	250	0.10	30 to 1M	n/a	0.250	-55 to +125	100	No
SFM	0202; wire bondable	250	0.25	20 to 1M	n/a	0.250	-55 to +125	100	No
SFM	0202; wire bondable	250	0.50	10 to 1M	n/a	0.250	-55 to +125	100	No
SFM	0202; wire bondable	250	1	1 to 1M	n/a	0.250	-55 to +125	100	No
SFM	0202; wire bondable	250	2	1 to 1M	n/a	0.250	-55 to +125	100	No
SFM	0202; wire bondable	250	5	1 to 1M	n/a	0.250	-55 to +125	100	No
SFM	0202; wire bondable	250	10	1 to 1M	n/a	0.250	-55 to +125	100	No

TAGS	
TYPE	PARAMETER
Mounting technology	Other
Technology	Thin film
Applications	
Characteristics	Wire bondable



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